

Na Meng

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I am an assistant professor in the Computer Science Department at Virginia Tech. My areas of interest are software engineering and programming languages. In particular, I have focused on automatically making code changes to help programmers efficiently develop and maintain software for better scalability, reliability, and security.

EDUCATION

01/2014-08/2015 **University of Texas, Austin, TX**

Postdoc, Computer Science

Advisors: Miryung Kim, Kathryn S. McKinley

09/2009-12/2014 **University of Texas, Austin, TX**

PhD, Computer Science

Advisors: Miryung Kim, Kathryn S. McKinley

09/2006-07/2009 **Peking University, China (PKU)**

Master, Computer Science

Advisor: Qianxiang Wang

09/2002-07/2006 **Northeastern University, China**

Bachelor, Software Engineering

PUBLICATIONS

- **Exploring Systematic Edits for Refactoring**
Na Meng, Lisa Hua, Miryung Kim, Kathryn S. McKinley
In Proceedings of the 2015 International Conference on Software Engineering (ICSE), 2015
(Acceptance Ratio: 18.5%)
- **Lase: Locating and Applying Systematic Edits by Learning from Examples**
Na Meng, Miryung Kim, and Kathryn S. McKinley
In Proceedings of the 2013 International Conference on Software Engineering (ICSE), 2013
(Acceptance Ratio: 18.5%)
- **Systematic Editing: Generating Program Transformations from an Example**
Na Meng, Miryung Kim, Kathryn S. McKinley
In Proceedings of the 32Nd ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI), 2011
(Acceptance Ratio: 23.3%)

OTHER SHORT PAPERS AND DOCUMENTS

- **Programming the Internet of Uncertain <T>hings**
James Bornholt, *Na Meng*, Todd Mytkowicz, Kathryn S. McKinley
Sensors to Cloud Architectures Workshop (SCAW), 2015
- **Automating Program Transformations based on Examples of Systematic Edits**
Na Meng
Dissertation, 2014
- **Cookbook: In Situ Code Completion using Edit Recipes Learned from Examples**
John Jacobellis, *Na Meng*, Miryung Kim
In Companion Proceedings of the 36th International Conference on Software Engineering (ICSE)

Companion), 2014

- **Lase: An Example-Based Program Transformation Tool for Locating and Applying Systematic Edits**
John Jacobellis, Na Meng, and Miryung Kim
In *Proceedings of the 2013 International Conference on Software Engineering (ICSE)*, Formal Research Tool Demonstrations, 2013
- **Sydit: Creating and Applying a General Program Transformation from an Example**
Na Meng, Miryung Kim, Kathryn S. McKinley
In *Proceedings of the 19th ACM SIGSOFT Symposium and the 13th European Conference on Foundations of Software Engineering (ESEC/FSE)*, Formal Research Tool Demonstrations, 2011
- **Recommending Program Transformations to Automate Repetitive Software Changes**
Miryung Kim, Na Meng
Book Chapter on *Recommendation Systems on Software Engineering*, 2014
- **Towards SOA-based Code Defect Analysis**
Qianxiang Wang, Na Meng, Zhiyi Zhou, Jinhui Li and Hong Mei
In *Proceedings of the 4th IEEE International Symposium on Service-Oriented System Engineering (SOSE)*, 2008
- **An Approach to Merge Results on Multiple Static Analysis Tools (Short Paper)**
Na Meng, Qianxiang Wang, Qian Wu and Hong Mei
In *Proceedings of the 8th International Conference on Quality Software (QSIC)*, 2008
- **A Pattern-based Constraint Description Approach for Web Services**
Qianxiang Wang, Min Li, Na Meng, Yonggang Liu and Hong Mei
In *Proceedings of the Seventh International Conference on Quality Software (QSIC)*, 2007
- **A Visual Constraint Specifying Approach for Adaptive Software**
Qianxiang Wang, Min Li and Na Meng
In *Proceedings of the Third International Workshop on Software Cybernetics, in conjunction with International Computer Software and Applications Conference (COMPSAC)*, 2006

RESEARCH EXPERIENCE

- Assistant Professor 08/2015-present
Virginia Tech Blacksburg, VA
- Mine software repositories to construct datasets to evaluate existing automatic tool support for bug localization, library migration, and program optimization.
 - Design and implement better solutions for automatic bug localization, library migration, and program optimization.
- Research Assistant and Postdoc 09/2009-08/2015
The University of Texas at Austin Austin, TX
- Exploring Systematic Edits for Refactoring: Designed and implemented an approach, Rase, to automate redundant code removal refactoring for code snippets that experience similar changes.
 - Locating and Applying Systematic Edits by Learning from Examples (Lase): Designed and implemented an approach to infer a general program transformation from several code change examples given by developers, and to leverage the inferred program transformation for both finding edit locations and applying similar edits.
 - Generating Program Transformations from an Example (Sydit): Designed and implemented an approach to infer a general program transformation from one code change, to customize the inferred program transformation for user-provided target edit locations, and to apply the customized edits automatically.
- Research Intern 09/2013-12/2013
RiSE group, Microsoft Research Redmond, WA
- Exploiting Domain Knowledge to Improve Estimates: Designed and implemented an approach to improve accuracy of applications that base computations on noisy estimated data from hardware

sensors, machine learning, and crowd sourcing. The approach integrated application-specific knowledge with estimated data using Bayesian inference. When implemented for an Xbox Kinect game, Simon, the approach managed to improve the accuracy from 60% to 89%.

Research Intern

05/2012-08/2012

Java Platform team, Google

Mountain View, CA

Diagnosing Root Causes for Flaky Tests (Deflake): Designed and implemented an approach to compare different runs of the same program to help developers understand nondeterministic behaviors of the program. The approach collects method call traces at runtime and then conducts offline static analysis to localize trace portions where behavioral differences manifest. It helps developers identify causes for more than 100 flaky tests—tests which sometimes succeed and sometimes fail.

Research Assistant

09/2006-07/2009

Peking University

Beijing, China

Visualized constraint specification and monitoring, pattern-based bug detection

Research Intern

10/2007-12/2007

IBM China Research Lab (CRL)

Beijing, China

Single-sign On (SSO) security mechanism customization for small and medium enterprises

TALKS & PRESENTATIONS

- **Automating Program Transformations based on Examples of Systematic Edits**
at Microsoft Research-Redmond, Semantic Designs, UCLA, UB, UVa, UTSA, UH, UMass Amherst, UConn, UPitts, Georgia Tech, 2015;
- **Lase: Locating and Applying Systematic Edits by Learning from Examples**
at ICSE conference, San Francisco, CA, 2013;
at Microsoft Research, Redmond, WA, 2013;
- **Static Analysis on Call Trace**, in Google, Mountain View, CA, 2012;
- **Systematic Editing: Generating Program Transformations from an Example**
at PLDI conference, San Jose, CA, 2011;
at Texas Software Engineering Symposium, Austin, TX, 2011;
- **Sydit: Creating and Applying a Program Transformation from an Example**
at ESEC/FSE conference, Szeged, Hungary, Sep. 2011.

TEACHING

- **Software Engineering** (Virginia Tech – CS3704), Fall 2015
- **Software Engineering** (The University of Texas at Austin – CS373), TA, Fall 2009
- **Advanced Software Engineering** (Peking University), TA, Fall 2008
- **Advanced Software Engineering** (Peking University), TA, Spring 2007

HONORS AND AWARDS

- MSR 2015 Distinguished Reviewer
- ACM SIGSOFT Travel Award, ESEC/FSE 2011
- College of Natural Sciences Dean's Excellence Award, UT-Austin, 2009
- Excellent Learning Award of Peking University, 2007
- Excellent Bachelor Thesis of Software Engineering Department, Northeastern University, 2006
- Hewlett-Packard Scholarship, 2005
- IBM Scholarship, 2004

ACTIVITIES

- Reviewer, ETX 2015, SEA 2015
- PC member, Artifact Evaluation for CGO and PPOPP 2016, OOPSLA 2015, PLDI 2015, CGO and PPOPP 2015
- Reviewer, Journal of Software: Evolution and Process (JSME) 2015, IEEE Software 2015, Journal of Systems and Software (JSS) 2015, JSS 2014, Journal of Empirical Software Engineering 2013, Journal of Software: Evolution and Process 2015

- PC member, The 12th Working Conference on Mining Software Repositories (MSR), 2015
- Sub-reviewer, International Symposium on Foundations of Software Engineering (FSE), 2014
- Sub-reviewer, International Conference on Software Maintenance (ICSM), 2011
- Sub-reviewer, Conference on Programming Language Design and Implementation (PLDI), 2011
- Sub-reviewer, International Symposium on Empirical Software Engineering and Measurement (ESEM), 2010
- Participant, CRA-W Grad Cohort, 2011
- Member, Graduate Representative Association of Computer Science (GRACS), UT-Austin, 2011
- Reviewer, NCWIT Award for Aspirations in Computing, 2009

REFERENCES

Miryung Kim (PhD advisor)
Associate Professor
Department of Computer Science
University of California, Los Angeles
Los Angeles, CA, 90095
miryung@cs.ucla.edu
Tel: 310-825-2858

Don Batory
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The University of Texas at Austin
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Mark Harman
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Kathryn S. McKinley (PhD advisor)
Principal Researcher
Research in Software Engineering (RiSE) group
Microsoft Research
Redmond, WA, 98052
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Todd Mytkowicz
Senior Research Software Development Engineer
Research in Software Engineering (RiSE) group
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